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August 22, 2005

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Serial No. 09/608,548

Our Ref. No.: CISC171

Re: Notice of Appeal/Pre-Appeal Brief Request for Review

Pages Including Cover Sheet(s): 7

Fax Contents: Fax Cover Sheet- 1 page
Notice of Appeal- 2 pages
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MESSAGE:

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

In re application of: Lincoln Dale et al.

Attorney Docket No.: CISCPI71

Application No.: 09/608,548

Examiner: Aaron N. Strange

Filed: June 30, 2000

Group: 2153

Title: EFFICIENT IP LOAD-BALANCING
TRAFFIC DISTRIBUTION USING TERNARY
CAMs

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being transmitted via facsimile to the United States Patent and Trademark Office, Attention: Examiner Aaron N. Strange at facsimile number 571-273-8300 on August 22, 2005.

Signed: _____

Natalie Morgan

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reasons stated on the attached sheets.

Remarks begin on page 2 of this paper.

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Atty Docket: CISCPI71

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REMARKS

Examiner failed to show teachings for using or configuring a CAM that (1) indicates whether to redirect a packet and (2) is configured to distribute packets based on a load balancing technique

The Examiner rejected claim 30 under 35 U.S.C. §102(e) as being anticipated by Basilico (US 6,243,360). Claims 1, 10, 15, 24 and 29-32 are rejected under 35 U.S.C. §103(a) as being unpatentable over Basilico in view of Yates et al. (US 6,167,438). Claims 5, 7-9, 13, 14, 19, 21-23, 27, 28, 36, and 38-40 are rejected under 35 U.S.C. §103(a) as being unpatentable over Basilico in view of Yates et al. and in further view of Nataraj et al. (US 6,154,348). Pertinent arguments were presented in Applicants responses, including a response filed on 3 June 2005.

All independent claims 1, 15, 29, and 31 include mechanisms for configuring a CAM (content addressable memory) to "indicate the distribution of received packets based on a load balancing technique to a plurality of cache systems that each spoof a destination indicated by the received packets." At least a packet portion is input into the configured CAM. The claims require mechanisms for "obtaining a result from the CAM to indicate whether to redirect the received packet to a selected cache system and to indicate to which cache system selected from among the plurality of cache systems the received packet is to be redirected if the CAM also indicates that the received packet is to be redirected" and "redirecting the received packet to the selected cache system when the CAM indicates to redirect the received packet." Otherwise, when the CAM does not indicate to redirect the received packet, mechanisms are provided for "sending the received packet to a destination indicated by the received packet." Independent claims 10, 24, 30, and 32 recite limitations for generating a plurality of entries in a CAM, where each entry includes "one or more destination fields indicating where to send a packet that matches the entry's set of bit values and indicating whether to redirect the packet from a destination indicated by the packet, wherein the CAM is configured to distribute received packets to the plurality of cache systems based on a load balancing technique."

The invention is directed towards using or configuring a CAM that has particular characteristics, namely, that the CAM (1) indicates whether to redirect a received packet, and (2) indicates the destination for redirection (if redirection is indicated by the CAM) (3) is configured to indicate distribute based on a load balancing technique. Although the primary reference Basilico teaches using a CAM to indicate a destination to which to redirect a received packet,

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Basilico fails to teach or suggest features (1) and (3) of the CAM as claimed. That is, Basilico fails to disclose a CAM having features of the present invention: (1) indicates whether to redirect a received packet and that (3) the CAM is configured to indicate distribution based on a load balancing technique.

In contrast, Basilico teaches using or configuring a CAM simply to look up a destination in the form of port codes based on a particular destination address and nothing more. Basilico only shows the CAM in Fig. 4 and only describes the CAM in Col. 5, Lines 8-18 and Col. 6, Lines 1-3. In these brief portions, Basilico teaches that a "microprocessor 62 stores a destination address field 38 for a data frame 28 (See Fig. 2) in the content addressable memory 64" and this "address stored in CAM 64 is used as an entry into a table look-up contained in the RAM 66." Also, this "table look-up provides a code which indicates the address of the network interface card with which the transmitting workstation wishes to communicate." That is, the destination address field of a packet is used to retrieve a code via the CAM that corresponds to a destination NIC to which the workstation wishes to communicate. The code is then "embodied in the header 30" and "prepended to the frame by the processor before transmitting the frame to the cross-connect switch 52." The switch 52 assigns codes to each output port. See Col. 4, Lines 4-7. In other words, Basilico is teaching that the destination address in the packet is input to a CAM and a port code is then output from the CAM, and this code corresponds to an output port and NIC (destination for the particular packet).

Basilico also describes a process in Fig. 5B and Col. 5, Line 42 through Col. 6, Line 36 which only briefly mentions the CAM as being used only for matching a packet's destination address to a particular port code. In Steps 502, the workstation sends a data frame that has a destination address to the switch. This address had previously been obtained by the workstation from the server and the address corresponds to the first NIC in the server. Col. 4, Lines 50-57. In step 506, a header is generated by the CAM/RAM lookup from the destination address of the packet that was received into the switch. Col. 5, Lines 1-3. As described above, this header includes a code that corresponds to a particular output port of the switch and NIC of the destination server.

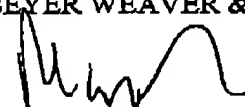
In step 510, the "header is appended to the data frame...and transmitted to the cross-connect switch 54." Lines 4-6 (Emphasis added). Of note, the packet with its prepended header (which was previously generated by the CAM) is transmitted to the cross-connect switch, and it is the cross-connect switch 54, and not the CAM, which is then described as performing load

balancing in Steps 510 through 522. Additionally, the CAM is shown as a separate device 64 than the cross-connect switch 52 in Fig. 4. Specifically, in Step 512, "the switch 54 tests ...whether the destination port is currently busy." In Steps 514 and 518, if the specified port in the header (generated by the CAM in previous Step 506) is busy and there are other available ports in the same group, it is then determined whether another port is busy (Step 512). If the new specified port is not busy, the packet is sent to the new specified port (Step 512) prior to stripping the generated header (Step 516). These load balancing steps are performed by the cross-connect switch after the CAM has produced an initial port code for the initial destination and after the packet with its new header is transmitted to the cross-connect switch. Basilico does not mention the CAM again with respect to load balancing, but merely describes the load balancing steps as being performed by the cross-connect switch. It is the switch that provides a new destination for a packet by stripping the previous header when the port that was previously assigned by the CAM is busy. Basilico fails to teach anything about the CAM indicating *whether to redirect the packet*, in the manner claimed. Additionally, Basilico fails to teach using a CAM that is configured to indicate redirection of traffic to a cache system based on a load balancing technique (or configuring a CAM in such a manner), in the manner claimed.

In sum, Basilico fails to teach or suggest apparatus or methods for using (or configuring) a CAM to return results (1) that indicate whether to redirect the packet to a selected cache system and (2) that are based on a load balancing technique, in the manner claimed. The secondary reference also fails to teach or suggest such feature.

In view of the foregoing, it is respectfully submitted that the rejections of all pending claims should be withdrawn.

Respectfully submitted,
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